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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,593

12/30/2009

Min-Woo Choi

1365-4 PCT US

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EXAMINER

SMITH, ERIN W

ART UNIT

PAPER NUMBER

3632

MAIL DATE

DELIVERY MODE

05/09/2011

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,593	CHOI, MIN-WOO	
	Examiner	Art Unit	
	ERIN SMITH	3632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The following correspondence is a Final Office Action for application No. 10/575, 593 for a Vacuum fixer, filed on 12/30/2009. This correspondence is in response to applicant's reply on 1/28/2009. Claims 1-11 are pending. Claims 6-11 are added.

Priority

1. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. Korea 20-2003-0031990, filed on 10/11/2003.
2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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2. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stoll (4, 858, 976) in view of Zou (US 2002/0113181 A1) and Min-Woo Choi (KR 20-0302081) and in further view of Doran (6, 856, 761 B2).

3. Considering claims 1 and 5-11 Stoll teaches, “a hat-shaped pressing plate (Figure 1) ...; a disk-type suction plate (2)... and covered with the pressing plate (Figure 1) and having a first diameter... surface wherein the pressing plate (Figure 1) includes a vacuum wall (19)...having an inclined compression surface (Figure 1) directing to the center of the pressing plate (Figure 1) and a co-centric circular saw-toothed type contact protrusion (43) formed on the inner surface of the pressing plate (Figure 1) in such a manner as to be positioned at the inner portion than the vacuum wall (19), wherein the suction plate (2) has a diameter smaller than that of the vacuum wall (19) and includes a central part (Figure 1), an inclined part (Figure 1) and a circumferential part (Figure 1), the circumferential part (Figure 1) having an inclined lift surface (Figure 1) formed on the peripheral edge thereof and overlapped with the inclined compression surface (Figure 1) of the pressing plate (Figure 1), the inclined lift surface (Figure 1) having a gradually narrowed upper portion and a gradually widened lower portion,...pressing plate made of rigid synthetic resin (Column 5, lines 22-24) and disk-type suction plate made of soft synthetic resin (Column 5, lines 15-21)”

4. Stoll fails to teach “a screw shaft (3), a screw tightening member (31) coupled to a protruding front end of the screw shaft (3), the vacuum wall being made of gel-type polyurethane which is 150 - 250 pcs in viscosity and wherein the screw tightening member (31) has a hanger (Figure 1) formed on the upper end thereof. Zou teaches “a screw shaft (3), a screw tightening member (31) coupled to a protruding front end of the screw shaft (3),... wherein the screw

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tightening member (31) has a hanger (Figure 1) formed on the upper end thereof” and also teaches “wherein the screw tightening member has a grip formed on the upper end thereof” (the grip is the top mushroom shaped element not labeled) [limitation from claim 5]. Zou fails to teach “the vacuum wall being made of gel-type polyurethane which is 150 - 250 pcs in viscosity.”

5. Both Stoll and Zou teach of suction cup actuating assemblies. It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the actuating assembly of Stoll for the actuating screw assembly of Zou to provide a sucker structure capable of firmly adhering to a smooth surface as taught by Zou (paragraph 003). Stoll, as modified, fails to teach of polyurethane with a viscosity of 150 – 250 cps. Choi discloses it is known to use polyurethane for suction cups (Page 2, lines 9-12).

6. It would have been obvious for one of ordinary skill in the art at the time the invention was to make the vacuum wall of Stoll of gel type polyurethane a viscosity of 150 – 250 cps to tightly seal and achieve vacuum suction as taught by Choi and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

7. Moreover, Stoll as modified above fails to teach “the vacuum wall filling the fine cracks or the indented portions during the adhering of the vacuum fixer onto the adhered” Doran teaches "The cups can be of concertina form and can be provided with an annular, flexible closed-cell foam pad around their mouths to assists in sealing against an irregular surface.” (Abstract) It is old and well known in the art that the vacuum wall of a suction cup initial connect with surface and creates a vacuum through out, thus, it would have been obvious to one

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of ordinary skill in the art at the time of the invention to combine the teaching of Doran with Stoll as modified to have a suction cup that can work on irregular or rough surfaces.

8. Considering claim 2, Stoll as modified, fails to teach that that “vacuum wall is made of polyurethane where diol compound having a molecular weight of 4,000 - 6,000 is mixed with methylene-diisocyanate in the ratio of 1:8 to 12.” It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a molecular weight of the.... In the ratio of 1:8 to 1:12, to achieve a desired seal-ability and vacuum, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. See also *Ballas Liquidating Co. v. Allied industries of Kansas, Inc.* (DC Kans) 205 USPQ 331 and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

9. Considering claim 3, Stoll as modified teaches vacuum wall (19) is in the form of a right-angled triangle, but fails to teach where the ratio of the height to the base line is 1: 1.5 to 1.8. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the height to base line ratio in the range of 1:1.5 to 1:1.8 to achieve a desired seal-ability and vacuum, as it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

10. Considering claim 4, Stoll as modified, discloses the claimed invention except is four or five times thicker than the circumferential part (Figure 1). It would have been obvious to one

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having ordinary skill in the art at the time the invention was made to have the central part of the suction plate four or five times thicker than the circumferential part to achieve a desired sealability and vacuum, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Response to Amendment

The Examiner acknowledges the amending of claims 1-5, the addition of claims 6-11 and specification on 1/28/2009.

Response to Arguments

Applicant's arguments filed 1/28/2009 have been fully considered but they are not moot in view of new grounds of rejection(s).

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIN SMITH whose telephone number is (571)270-7023. The examiner can normally be reached on Monday to Thursday 9am-7pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrell McKinnon can be reached on (571)-272-4797. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ERIN W. SMITH/
Examiner, Art Unit 3632

/Terrell McKinnon/
Supervisory Patent Examiner, Art Unit 3632